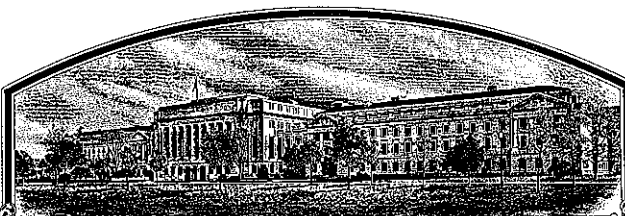


No.

9300295



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Florida Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT.

UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS OF THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Florida 304'

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington, D.C.
this 29th day of October in
the year of our Lord one thousand nine
hundred and ninety-three.

Attest

Kenneth A. Evers
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Mike Egan
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Florida Agricultural Experiment Station University of Florida - IFAS		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. FL 8172-G98-L5	3. VARIETY NAME Florida 304
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) Dean for Research University of Florida P O Box 110200 1022 McCarty Hall Gainesville FL 32611-0200		5. PHONE (include area code) 904/392-1784	FOR OFFICIAL USE ONLY VPPO NUMBER 9300295 F I L I N G Date August 19, 1993 Time 12:05 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M. F E E S Filing and Examination Fee: \$ 2325.00 Date August 17, 1993 R E C E I V E D Certificate Fee: \$ 275.00 Date Oct. 18, 1993
6. GENUS AND SPECIES NAME Triticum aestivum	7. FAMILY NAME (Botanical) Gramineae		
8. CROP KIND NAME (Common Name) Wheat, common	9. DATE OF DETERMINATION May, 1988		
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.)			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS R. D. Barnett North Florida Research & Education Center Route 3 Box 4370 Quincy FL 32351			

904/627-9236
PHONE (include area code):

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

a. ☒ Exhibit A, Origin and Breeding History of the Variety.
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety.
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 7/29/93
g. ☒ Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)
☒ YES (If "YES," answer items 16 and 17 below) ☐ NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.
☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____)
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES?
☒ YES (If "YES," give names of countries and dates) September 1992 in U.S.
☐ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s)) Ronald D. Barnett	CAPACITY OR TITLE Professor of Agronomy	DATE 7/29/93
SIGNATURE OF APPLICANT (Owner(s)) Joseph T. Tye	CAPACITY OR TITLE Interim Dean for Research	DATE 08/12/93

Exhibit A

Origin and Breeding History of Florida 304

Pedigree: Predgornaia 2/3/Blueboy II/Coker 68-8//Fulbarn/4/Coker 80-29

Date of Final Cross: 1981

Breeding History:

Florida 304 (PI562528) was selected from a cross made in 1981 at Quincy, Florida, between a Florida breeding line FL74265-10-A2-B2 and a Coker breeding line, Coker 80-29. The Florida line has the following pedigree: Predgornaia 2/3/Blueboy II/Coker 68-8//Fulbarn. Predgornaia 2, which originated from Romania was selected from the 1973 International Winter Wheat Rust Nursery as a source of leaf rust resistance. Fulbarn is a germplasm release from Oklahoma State University that also carries additional leaf rust resistance genes. Florida 304 was developed utilizing a pedigree system with selection occurring in the F_3 and F_4 generations and originated from a single F_5 head row grown in 1987 at Quincy. It was tested experimentally as FL8172-G98-L5, in a preliminary yield test in 1988. In 1989 and 1990, the line was included in an advanced yield trial at two locations in the panhandle area of Florida. Florida 304 was an entry in the Florida State Variety Trials in 1991 and 1992. It was included in the Uniform Southern Soft Red Winter Wheat Nursery in 1991 and 1992.

Florida 304 is a medium maturing, soft red winter wheat. This cultivar is high yielding and has a high test weight. The wheat is medium in height, is whiter chaffed and bearded. It was selected for release because it has excellent resistance to leaf rust and Hessian fly, although it is moderately susceptible to powdery mildew and soil-borne mosaic virus and susceptible to bacterial streak.

Florida 304 is uniform and stable. Less than 1% of the plants are off type plants. An occasional taller plant may occur. Also an occasional beardless or bronze head may be found.

Florida 304 is to be sold by variety name only as a class of certified seed. Seed of Florida 304 has been shared with Foundation organizations in South Carolina, Georgia, Alabama and Louisiana. Seed will be distributed by the Florida Foundation Seed Producers, Inc., P.O. Box 309, Greenwood, FL 32443.

9300295

Amendment to Exhibit A
Origin and Breeding History of Florida 304 Wheat

Florida 304 has been found to be uniform and stable since 1988. So
it has been stable for at least 6 years.

Exhibit B

Novelty Statement

Florida 304 is a soft red winter wheat, bearded and white chaffed. It is similar in appearance to Florida 303, but differs in that it is nine days later in heading than Florida 303 and is resistant to biotypes E and GP of Hessian fly, whereas Florida 303 is susceptible.

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Florida Agricultural Experiment Station
University of Florida - IFAS
Dean for Research
P O Box 110200, 1022 McCarty Hall
University of Florida
Gainesville, FL 32611-0200

FOR OFFICIAL USE ONLY

PVPO NUMBER

9300295

VARIETY NAME OR TEMPORARY
DESIGNATION

Florida 304

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. or) when number is either 99 or less or 9 or less.

1. KIND:

1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

1 = SPRING 2 = WINTER 3 = OTHER (Specify) 1 = SOFT 2 = HARD 3 = OTHER (Specify)

1 = WHITE 2 = RED 3 = OTHER (Specify)

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

FIRST FLOWERING LAST FLOWERING

4. MATURITY (50% Flowering):

NO. OF DAYS EARLIER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
 NO. OF DAYS LATER THAN 4 = LEMHI 5 = NUGAINES 6 = LEEDS
7 = Florida 302

5. PLANT HEIGHT (From soil level to top of head):

CM. HIGH 7 = Florida 302
 CM. TALLER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
 CM. SHORTER THAN 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (See reverse):

1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHR COLOR:

1 = YELLOW 2 = PURPLE

8. STEM:

Anthocyanin: 1 = ABSENT 2 = PRESENT Waxy bloom: 1 = ABSENT 2 = PRESENT
 Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT Internodes: 1 = HOLLOW 2 = SOLID
 NO. OF NODES (Originating from node above ground) CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

Anthocyanin: 1 = ABSENT 2 = PRESENT Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (Specify) Flag leaf: 1 = NOT TWISTED 2 = TWISTED
 Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
 MM. LEAF WIDTH (First leaf below flag leaf) CM. LEAF LENGTH (First leaf below flag leaf)

11. HEAD:

☐ 3 Density: 1 = LAX 2 = DENSE 3 = mid-dense

☐ 1 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE
4 = OTHER (Specify) _____

☐ 4 Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

☐ 1 Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED
5 = BROWN 6 = BLACK 7 = OTHER (Specify) _____

☐ 1 ☐ 0 CM. LENGTH

☐ 1 ☐ 1 MM. WIDTH

12. GLUMES AT MATURITY:

☐ 3 Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.)
3 = LONG (CA. 9 mm.)

☐ 2 Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.)
3 = WIDE (CA. 4 mm.)

☐ 2 Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED
4 = SQUARE 5 = ELEVATED 6 = APICULATE

☐ 3 Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

☐ 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

☐ 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

☐ 2 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

☐ 1 Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

☐ 1 Check: 1 = ROUNDED 2 = ANGULAR

☐ 3 Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

☐ 1 Brush: 1 = NOT COLLARED 2 = COLLARED

☐ Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN
4 = BROWN 5 = BLACK

☐ 3 Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

☐ 0 ☐ 7 MM. LENGTH

☐ 0 ☐ 3 MM. WIDTH

☐ 3 ☐ 6 GM. PER 1000 SEEDS

17. SEED CREASE:

☐ 1 Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'
2 = 80% OR LESS OF KERNEL 'CHRIS'
3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

☐ 3 Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'
2 = 35% OR LESS OF KERNEL 'CHRIS'
3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ 1 STEM RUST (Races)

☐ 2 LEAF RUST (Races)

☐ 0 STRIPE RUST (Races)

☐ 0 LOOSE SMUT

☐ 2 POWDERY MILDEW

☐ 0 BUNT

☐ OTHER (Specify) _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ 0 SAWFLY

☐ 0 APHID (Bydv.)

☐ 0 GREEN BUG

☐ 0 CEREAL LEAF BEETLE

☐ OTHER (Specify) _____

HESSIAN FLY
RACES:

☐ 2 GP

☐ 1 A

☐ 1 B

☐ 1 C

☐ 1 D

☐ 2 E

☐ 1 F

☐ 1 G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Florida 303	Seed size	Florida 303
Leaf size	Florida 303	Seed shape	Florida 303
Leaf color	Florida 303	Coleoptile elongation	
Leaf carriage	Florida 303	Seedling pigmentation	

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

Exhibit D

Additional Description of Florida 304

Florida 304 is a common soft red winter wheat, Triticum aestivum L. bred and developed by the University of Florida, Institute of Food and Agricultural Sciences at the North Florida Research and Education Center at Quincy, Florida.

Florida 304 is medium maturing, although it heads several days later than Florida 302, it normally matures several days earlier than Florida 302. Florida 304 has a high vernalization requirement and does not do well when seeded in the latter portion of the recommended planting period. Additional information is available in Quincy NFREC Research Report NF-92-12 which is included as a part of this exhibit.

Information on the milling and baking quality characteristics is also included in this exhibit in a quality report.

University of Florida
Institute of Food and Agricultural Sciences
North Florida Research and Education Center
Quincy, Florida

Quincy NFREC Research Report NF-92-12

Florida 304 - A New Hessian Fly Resistant
Soft Red Winter Wheat

R. D. Barnett, P. L. Pfahler, and A. R. Soffes

Wheat is an important component in the multiple-cropping minimum-tillage systems widely used in Florida. The acreage and production has fluctuated over the years but reached a record high in 1985 when 130,000 acres produced 4,290,000 bushels worth \$12,913,000 in Florida. The acreage has declined in the last few years to 40 - 50,000 acres primarily due to low grain prices.

Florida 304 is a medium maturing soft red winter wheat. It was developed by the University of Florida at the North Florida Research and Education Center at Quincy. This cultivar is high yielding, has a high test weight, is medium in height, has excellent resistance to leaf rust and Hessian fly. It is susceptible to powdery mildew, soil borne mosaic virus, and bacterial streak.

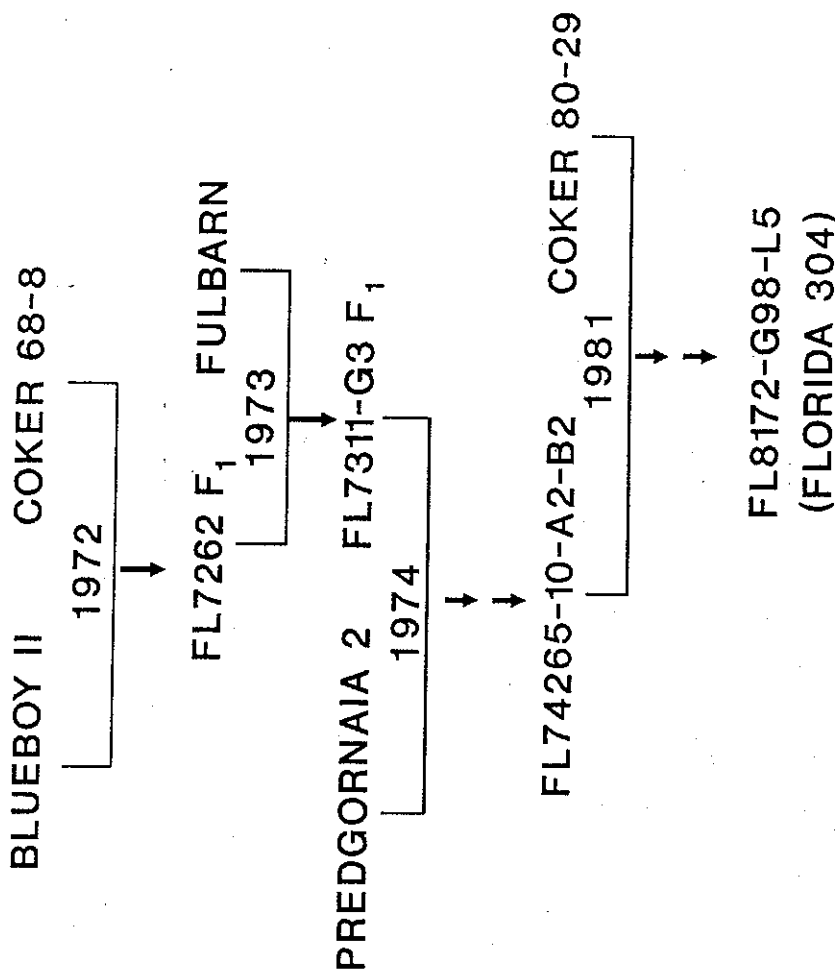
Florida 304 was selected from a cross made in 1981 between a Florida breeding line FL74265-10-A2-B2 and a Coker breeding line Coker 80-29. The Florida line has the following pedigree: Predgornaia 2/3/Blueboy II/Coker 68-8//Fulbarn. Predgornaia 2, which originated from Romania was selected from the 1973 International Winter Wheat Rust Nursery as a source of leaf rust resistance. Fulbarn is a germplasm release from Oklahoma State University that also carries additional leaf rust resistance genes. Coker 80-29 was an experimental Northrup King line that was never released but was used extensively as a parent. It has the following pedigree: Coker 68-15*2//Chancellor*8/Chul. Florida 304 was developed utilizing a pedigree system with selection occurring in the F₃ and F₄ generations and originated from a single F₃ head row grown in 1987 at Quincy. It was tested experimentally as FL8172-G98-L5.

Florida 304 was first yield tested in 1988 in a preliminary yield test (Table 1). In 1989 and 1990 it was included in an advanced yield trial at two locations (Tables 2-5). In 1991 and 1992 it was put in our state variety trials (Tables 6-9). A summary of 5 years of performance trials in Florida is presented in

Table 10. A summary of the performance of Florida 304 in the Uniform Southern Regional Nursery is presented in Table 11 and its performance in other states in Table 12. It has performed very well with good yields and excellent test weights. Additional strong points would be Hessian fly resistance and leaf rust resistance. Florida 304 was resistant to powdery mildew when we began increasing it but its resistance broke down this past year and we would now call it moderately susceptible to powdery mildew. Florida 304 is similar in height to Florida 302. Even though it heads out several days later than Florida 302, it normally matures several days earlier than Florida 302. It has a high vernalization requirement and does not do well with a late planting date. It is bearded like Florida 302 but does not exhibit the multiple spikelet character of Florida 302. The seed are smaller than Florida 302 but more uniform so it has an excellent test weight.

Application for plant variety protection will be filed with the USDA Plant Variety Protection Office specifying that seed of Florida 304 is to be sold by variety name only as a class of certified seed. Seed of Florida 304 has been shared with Foundation organizations in South Carolina, Georgia, Alabama, and Louisiana with a stipulation that a research fee will be collected on all classes of seed sold. Classes will be Foundation, Registered, and Certified. Approximately 3,000 bushels were available for distribution during the Fall of 1992 by the Florida Foundation Seed Producers, Inc., P. O. Box 309, Greenwood, Florida 32443.

ORIGIN AND PEDIGREE OF FLORIDA 304



Pedigree would be written as follows: Predgornaia 2/3/Blueboy II/Coker 68-8//Fulbarn/4/Coker 80-29

Coker 68-8 and Coker 80-29 are Coker breeding lines that were not released. Coker 68-8 is a Coker 65-20 type with added leaf rust resistance. Coker 80-29 is a Coker 68-15 type with added powdery mildew resistance. Fulbarn is a leaf rust resistant germplasm release from Oklahoma State University. Predgornaia 2 (PI 367728) is a plant introduction from Romania that was selected from the 1973 International winter wheat rust nursery (Entry 286).

Flow Diagram in Development of Florida 304

<u>Year</u>	<u>Generation</u>	
1981	F ₀	Final cross made in greenhouse at Quincy
1982	F ₁	Grown in greenhouse as a bulk
1983	F ₂	Grown in field at Quincy as a bulk
1984	F ₃	Individual plants were grown in the greenhouse and screened extensively for leaf rust.
1985	F ₄	Grown in field as plant rows. Single heads were harvested from plant rows.
1986	--	Stored on shelf for 1 year.
1987	F ₅	Grown as a head row in field at Quincy
1988	F ₆	Preliminary yield trial (1 location - 2 reps)
1989	F ₇	Advanced yield trial (2 locations - 4 reps)
1990	F ₈	Advanced yield trial (2 locations - 4 reps)
1991	F ₉	State yield trial (3 locations - 4 reps) and regional trials
1992	F ₁₀	State yield trial (3 locations - 4 reps) and regional trials

Table 1. Performance of selected entries in the 1988 Preliminary Wheat C Test grown at Quincy, Florida.

Entry	Grain yield	Rank in yield	Test weight	Heading date	Lodging	Plant height
	-bu/A-		-lbs/bu		---%---	inches
Florida 301	63.0	33	59.0	4-1	10	44
Florida 302	71.8	3	56.0	4-14	1	38
Traveler	62.7	34	58.0	4-7	0	35
Florida 303	69.8	6	58.5	4-1	3	37
Florida 301H	59.8	44	58.5	4-1	48	43
Florida 304	71.4	4	61.0	4-13	0	38
Grand mean	62.5					
LSD _{.05}	15.0					
C.V.	12.0%					

Planted 12-2-87, 2 replications, 60 entries.

Table 2. Performance of selected entries in the 1989 Advanced Wheat Test grown at Quincy, Florida.

Entry	Grain yield	Test weight	Heading Date	Lodging	Plant Height	Powdery* mildew
	bu/A	lbs/bu		---%---	inches	
Florida 301	33.8	54.0	3-19	28	33	4
Florida 302	43.8	51.5	3-30	23	34	4
Traveler	30.0	49.0	3-30	8	32	6
Florida 303	33.8	55.0	3-18	35	28	2
Florida 301H	27.9	56.0	3-19	37	31	8
ATW 270	38.5	56.5	3-18	32	30	7
Florida 304	33.3	56.5	3-23	25	37	0
Grand mean	29.8					
LSD _{.05}	6.5					
C.V.	15.7%					

Planted 12-7-88, 4 replications, 60 entries.

*0 = no disease, 9 = severe disease.

Table 3. Performance of selected entries in the 1989 Advanced Wheat Test grown at Marianna, Florida.

Entry	Powdery* mildew	Leaf† rust	Hessian‡ fly rating
Florida 301	5	S	3
Florida 302	4	S	4
Traveler	6	S	4
Florida 303	0	MR	3
Florida 301H	5	S	1
ATW270	5	MR	3
Florida 304	0	R	2

Planted 12-20-88, 4 replications, 60 entries. Very heavy Hessian fly pressure-test did not do well due to late planting - no grain was harvested.

*0 = no disease, 9 = severe disease.

†S = susceptible, MR = moderately resistant, R = resistant.

‡0 = Ratings are on 0-5 scale, 0 = no symptom of Hessian fly, 5 severe stunting from Hessian fly.

Table 4. Performance of selected entries in the 1990 Advanced Wheat Test grown at Quincy, Florida.

Entry	Grain yield	Rank in yield	Test weight	Heading date	Plant height	Leaf* rust
	bu/A		lbs/bu		inches	
Florida 301	41.9	19	57.4	3-27	39	5MR
Florida 302	37.4	33	52.3	3-31	34	50S
Traveler	33.4	41	52.5	3-20	32	30S
Florida 303	38.5	29	56.1	3-24	33	5R
Florida 301H	42.8	15	55.4	3-25	38	20S
ATW 270	36.7	35	51.4	3-26	36	10R
Coker 9766	42.2	17	53.1	4-4	37	20S
Florida 304	42.8	14	57.3	3-24	35	5R
Grand mean	39.5					
LSD _{.05}	9.6					
C.V.	14.9%					

Planted 12-1-89, 3 replications, 45 entries.

*Leaf rust rating are by modified Cobb Scale. Number = severity, letter = response. R = resistant, MR = moderately resistant, S = susceptible.

Table 5. Performance of selected entries in the 1990 Advanced Wheat Test grown at Marianna, Florida.

Entry	Grain yield	Rank in yield	Test weight	Heading date	Plant height	Lodging	Leaf*	Hessian† fly rating
	bu/A		lbs/bu		inches	-----%	rust	
Florida 301	28.3	33	55.4	3-19	37	30	2	1
Florida 302	14.6	45	52.5	3-24	37	16	6	3
Traveler	23.5	39	52.2	3-19	32	8	7	3
Florida 303	44.1	10	54.7	3-10	33	10	0	2
Florida 301H	37.0	20	55.0	3-18	37	28	5	1
ATW 270	29.1	30	52.8	3-18	32	14	0	3
Coker 9766	45.2	8	55.4	3-26	35	8	0	2
Florida 304	61.2	1	57.0	3-23	38	8	0	0
Grand mean	35.1							
LSD ₀₅	9.0							
C.V.	18.3%							

Planted 11-17-89, 4 Replications, 45 entries. Heavy Hessian fly pressure.

*Ratings are on 0-9 scale, 0 = no disease, 9 severe disease.

†Ratings are on 0-5 scale, 0 = no symptom of Hessian fly, 5 severe stunting from Hessian fly.

Table 6. Performance of selected entries in the 1991 State Variety Test grown at Quincy, Florida.

Entry	Heading date	Powdery* mildew
Florida 301	3-26	4
Florida 302	4-11	6
Traveler	4-5	6
Florida 303	3-27	6
Florida 301H	3-26	5
ATW 270	3-26	6
Florida 304	4-14	0

Planted 12-13-90, 5 replications, 48 entries.

*Scale = 0-9, 0 = no disease, 9 = severe disease.

Twenty plus inches of rainfall at harvest time prevented grain yield data collection.

Table 7. Performance of selected entries in the 1991 State Variety Test grown at Marianna, Florida.

Entry	Grain yield	Test weight	Heading date	Leaf* rust
	bu/A	lbs/bu		
Florida 301	23.1	48.0	3-14	0
Florida 302	9.8	45.5	3-22	40S
Traveler	22.6	47.7	3-21	60S
Florida 303	13.5	48.6	3-13	20R
Florida 301H	26.4	50.6	3-14	20R
ATW 270	27.3	49.9	3-15	30R
Florida 304	21.9	48.6	4-7	0
Grand mean				
LSD _{.05}				
C.V.				

Planted 11-30-90, 4 replications, 48 entries. Heavy rainfall at harvest.

*Leaf rust rating are by modified Cobb Scale. Number = severity, letter = response. R = resistant, S = susceptible, 0 = no disease.

Table 8. Performance of selected entries in the 1992 State Variety Test grown at Quincy, Florida.

Entry	Grain yield	Test weight	Heading date	Plant height	Lodging	Powdery* mildew
	bu/A	lbs/bu		inches	---%---	
Florida 302	65.4	61.0	4-2	43	15	4
Traveler	64.2	60.7	3-25	41	12	4
Florida 303	61.9	61.5	3-17	38	1	1
Florida 301H	56.4	62.1	3-14	41	10	5
ATW 270	60.8	61.3	3-16	41	17	3
Florida 304	68.3	61.1	4-3	44	4	0
LSD _{.05}	9.0					
C.V.	10.0%					

Planted 11-27-91. 4 replications, 48 entries.
 *Scale 0-9, 0 = no disease, 9 = severe disease.

Table 9. Performance of selected entries in the 1992 State Variety Test Grown at Marianna, Florida.

Entry	Grain yield	Test weight	Heading date	Plant height	Lodging	Powdery* mildew
	bu/A	lbs/bu		inches	---%---	
Florida 302	75.5	53.6	4-12	41	0	3
Traveler	71.1	55.6	4-6	41	0	4
Florida 303	78.4	55.9	3-29	42	0	3
Florida 301H	69.9	56.0	3-30	49	20	3
ATW 270	72.3	56.0	3-30	44	0	2
Florida 304	76.0	54.7	4-14	43	0	2
LSD _{.05}	13.5					
C.V.	16.5%					

Planted 12-16-91. 4 replications, 48 entries.
 *Scale 0-9, 0 = no disease, 9 = severe disease.

Table 10. Summary of 5 years of performance trials in Florida 1988-1992.

Entry	Grain* yield	Test* weight
	bu/A	lbs/bu
Florida 302	45.5	53.2
Traveler	43.9	53.7
Florida 303	48.5	55.8
Florida 301H	45.7	56.2
Florida 304	53.6	56.6

*Average of 7 location-years.

Table 11. Summary of performance of Florida 304 in 1991 Uniform Southern Soft Red Winter Wheat Nursery.

Entry	Grain yield southern region*	Test weight	Julian heading date	Height
	bu/A	lbs/bu		inches
Florida 302	29.1	50.1	113.0	35.7
Saluda	33.5	53.2	110.3	33.6
Coker 9733	33.7	55.1	115.5	37.7
Florida 304	34.7	52.2	113.4	36.0

Average from following 20 locations: Warsaw, Virginia; Overton, Texas, St. Matthews, SC; Florence, SC, Clemson, S. C; Clayton, NC; Portageville, MO; Quantico, MD; Baton Rouge, LA; Lexington, KY; Princeton, KY; Parson, KS; Princeton, IN; Griffin, GA; Tifton, GA; Belle Mina, AL; Normal, AL; Bay, AR, Keiser, AR, and Marianna, FL.

Table 12. Grain yield in bushels per acre of selected entries grown in other southern states in 1991 and 1992.

	1991			1992				
	AR	GA	SC	AR	GA	MS	LA	NC
Florida 302	49.3	24.1	34.5	85.9	--	60.7	63.7	75.4
Florida 303	52.3	--	35.5	79.0	61.5	58.2	64.8	--
Florida 304	53.7	29.9	33.7	87.6	60.6	61.7	66.9	58.2
No. of Locations	7	5	5	5	5	11	5	5

Soft Wheat Milling and Baking Quality

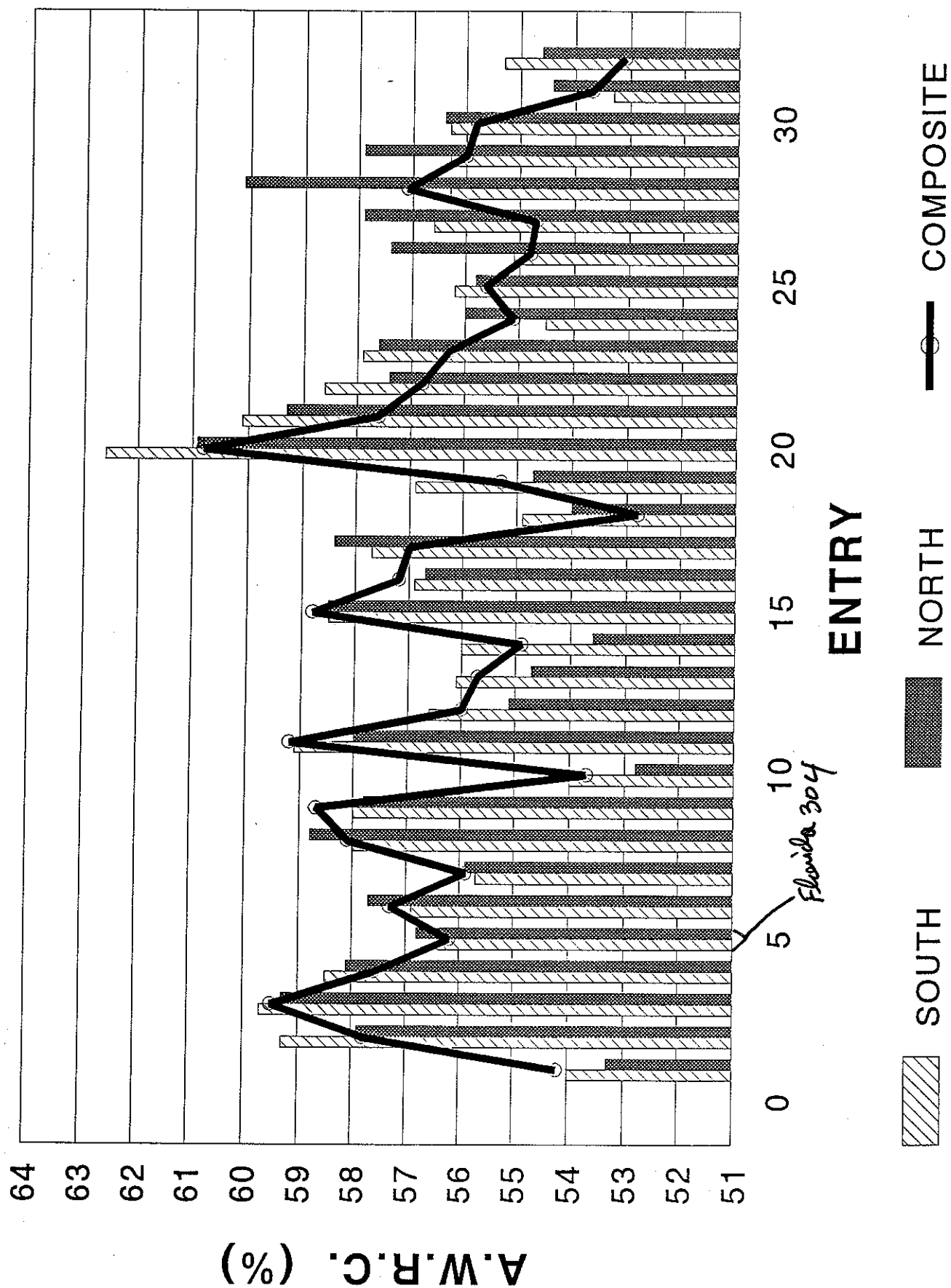
Evaluation of Florida 304

Data is presented on the accompanying graphs which gives results of regional composites of grain samples from the 1992 Uniform Southern Soft Red Winter Wheat Nursery. These are the results of the Advanced Nursery Evaluation of the Aelis composites conducted at the Soft Wheat Quality Laboratory at Wooster, Ohio. On these graphs Florida 304 is entry 5, Florida 302 is entry 1, Saluda is entry 2, and Coker 9835 is entry 3. The other entries are experimental lines from breeding programs throughout the eastern soft red winter wheat region. Data is presented on A.W.R.C. (Alkaline Water Retention Capacity), flour protein, flour yield, softness equivalent, test weight, cookie diameter, and baking quality score. This data shows that Florida 304 is not particularly outstanding in soft wheat milling and baking characteristics but it does fall within an acceptable range in these characteristics so that it can be used in soft wheat products.

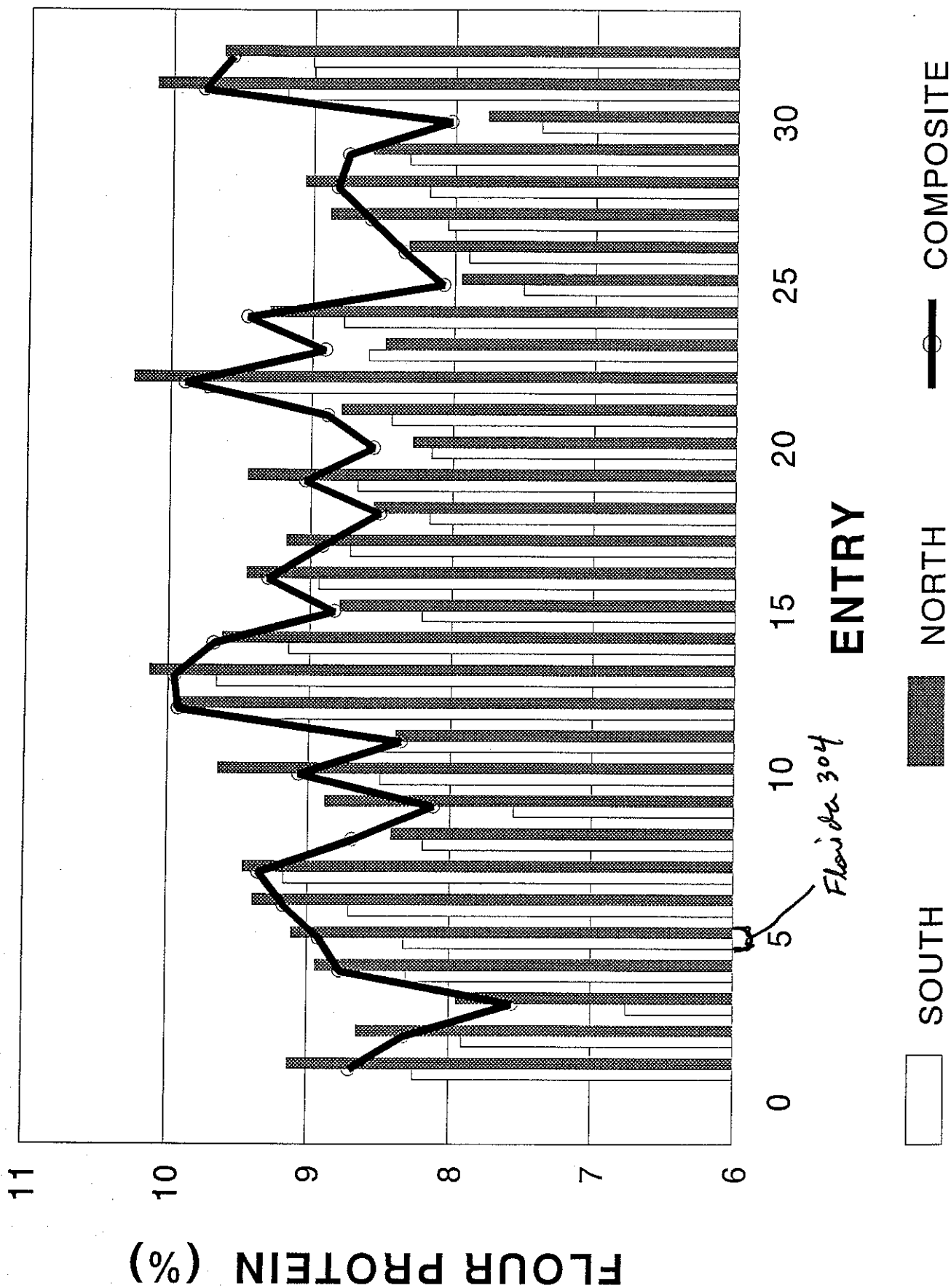
Additional data is presented on both the 1991 and 1992 Uniform Southern Soft Red Nursery on data collected at the Soft Wheat Quality Laboratory at Wooster, Ohio. Florida 304 is listed by its experimental number (FL8172-G98-5) in these tables. Additional data is presented in these tables that was not available on the graphs.

Results of the early generation screening evaluation conducted by the Soft Wheat Quality Laboratory at Wooster, Ohio are presented on the last two pages of this quality report. This is the result of analysis of 53 different wheats grown in 1992 at Quincy, Florida. Florida 304 was included as sample No. 2038. Again this data shows that Florida 304 is similar to many varieties of soft red winter wheat that have been released in the eastern region in soft wheat quality characteristics.

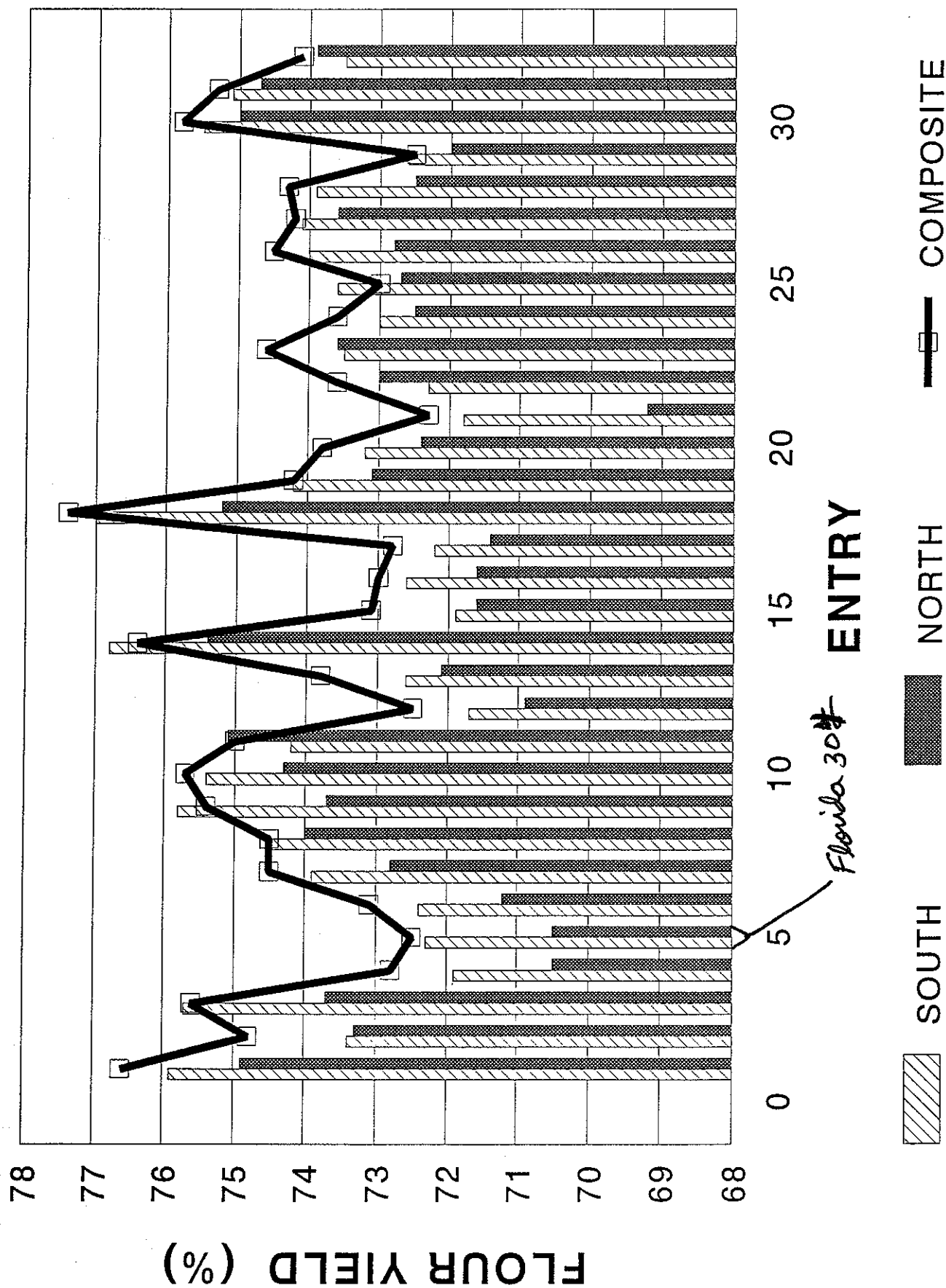
1992 UNIFORM SOUTHERN NURSERY (ADVANCED NURSERY EVALUATION)



1992 UNIFORM SOUTHERN NURSERY (ADVANCED NURSERY EVALUATION)

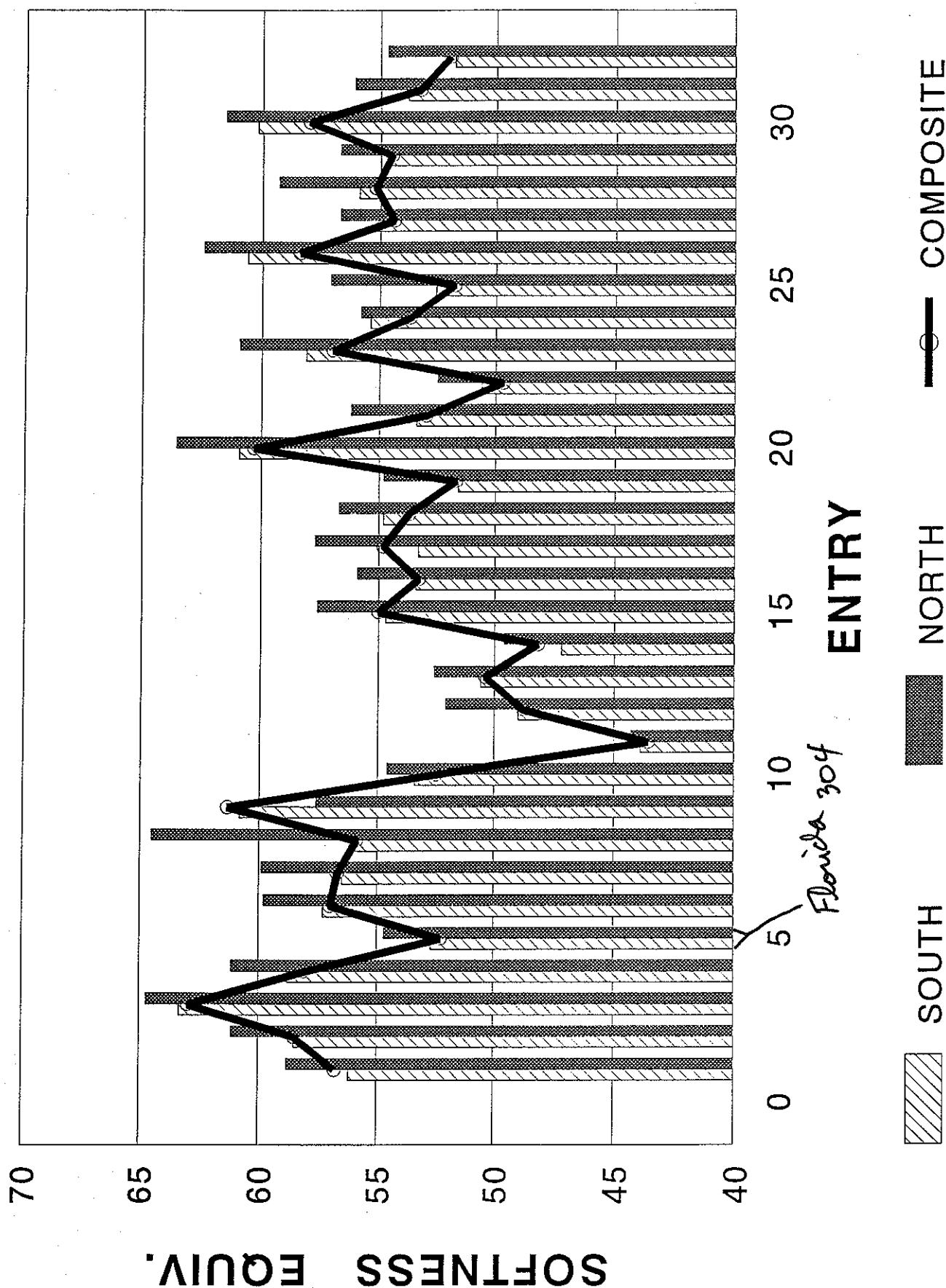


1992 UNIFORM SOUTHERN NURSERY (ADVANCED NURSERY EVALUATION)

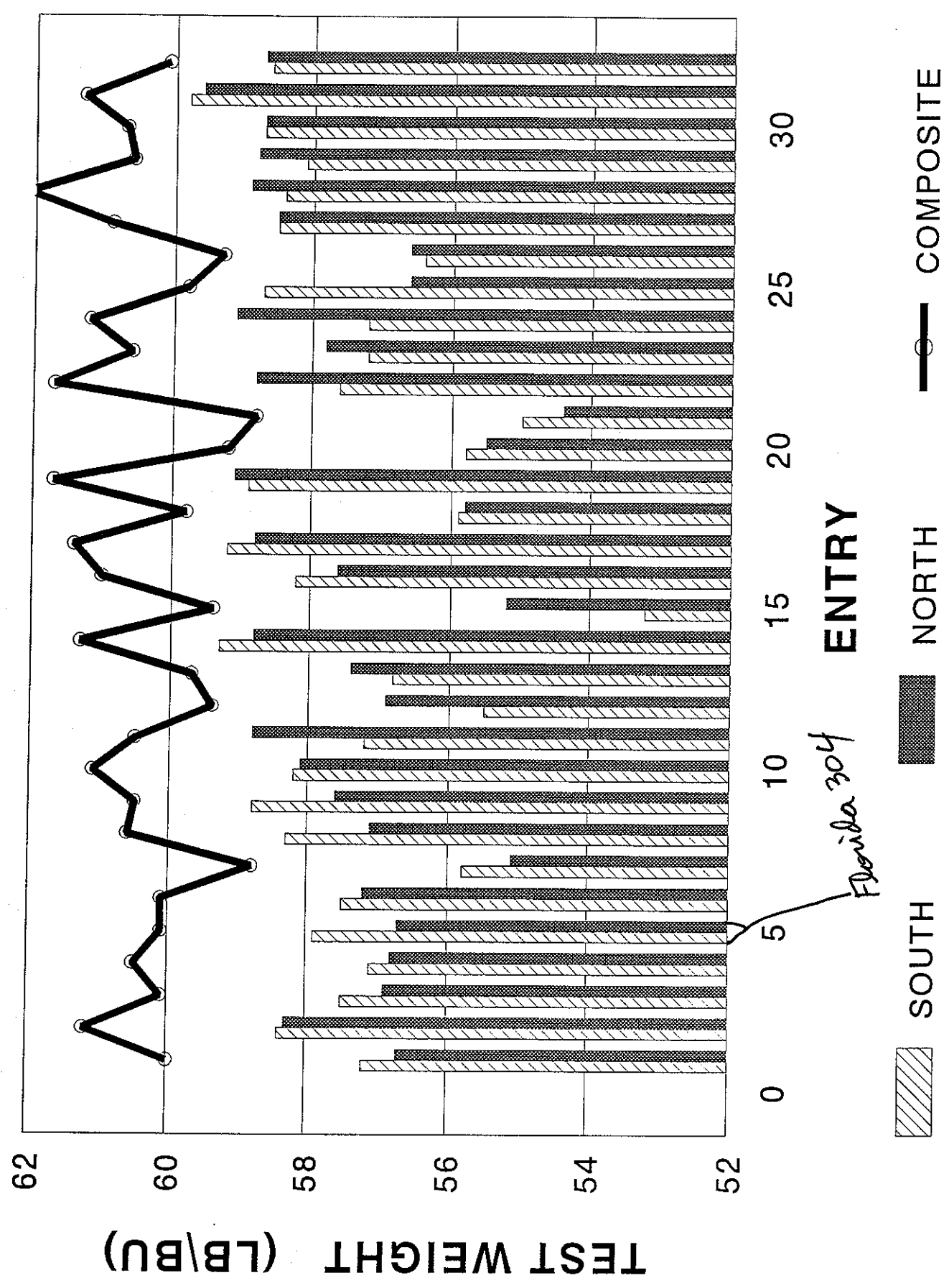


1992 UNIFORM SOUTHERN NURSERY (ADVANCED NURSERY EVALUATION)

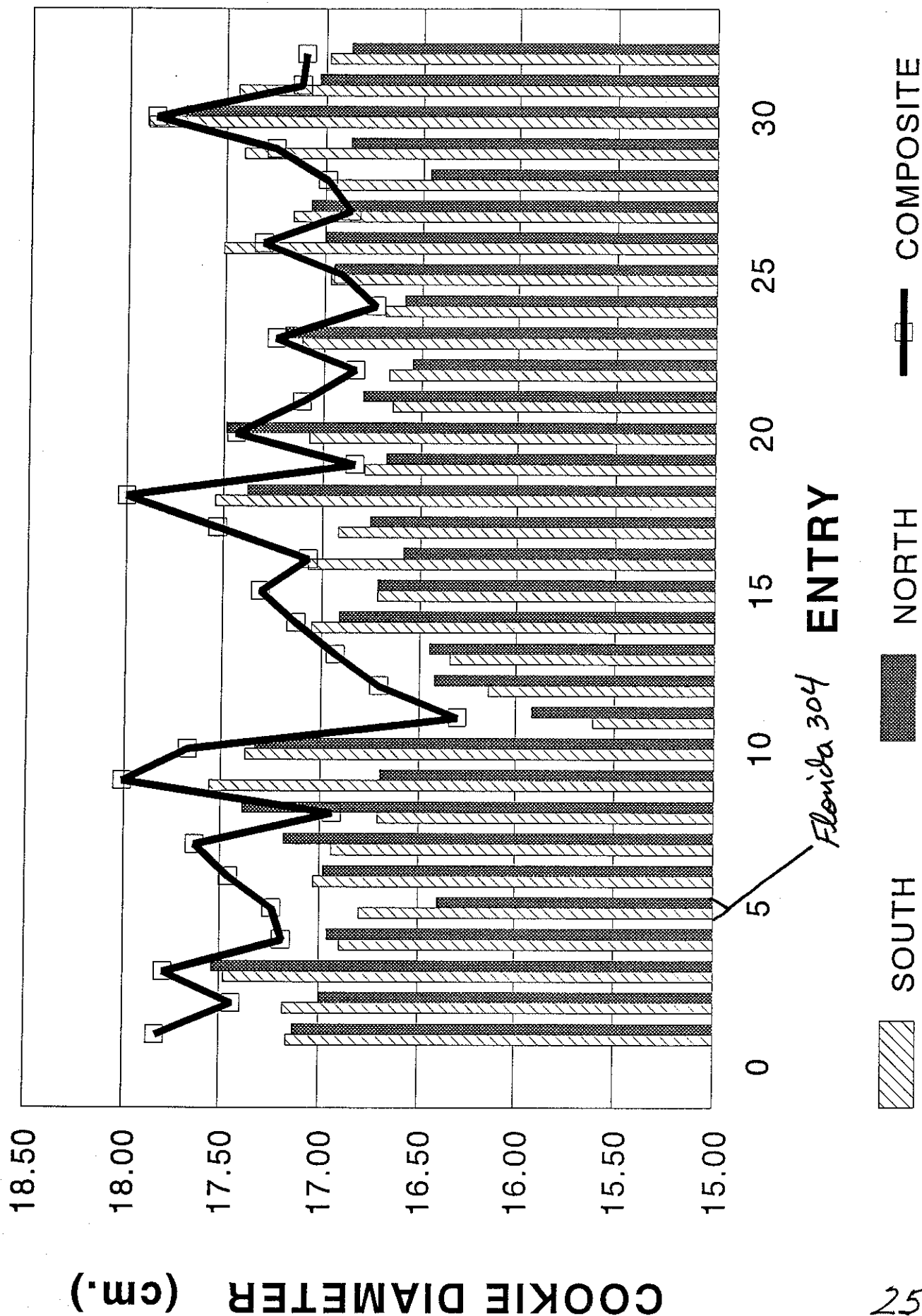
9300295



1992 UNIFORM SOUTHERN NURSERY (ADVANCED NURSERY EVALUATION)

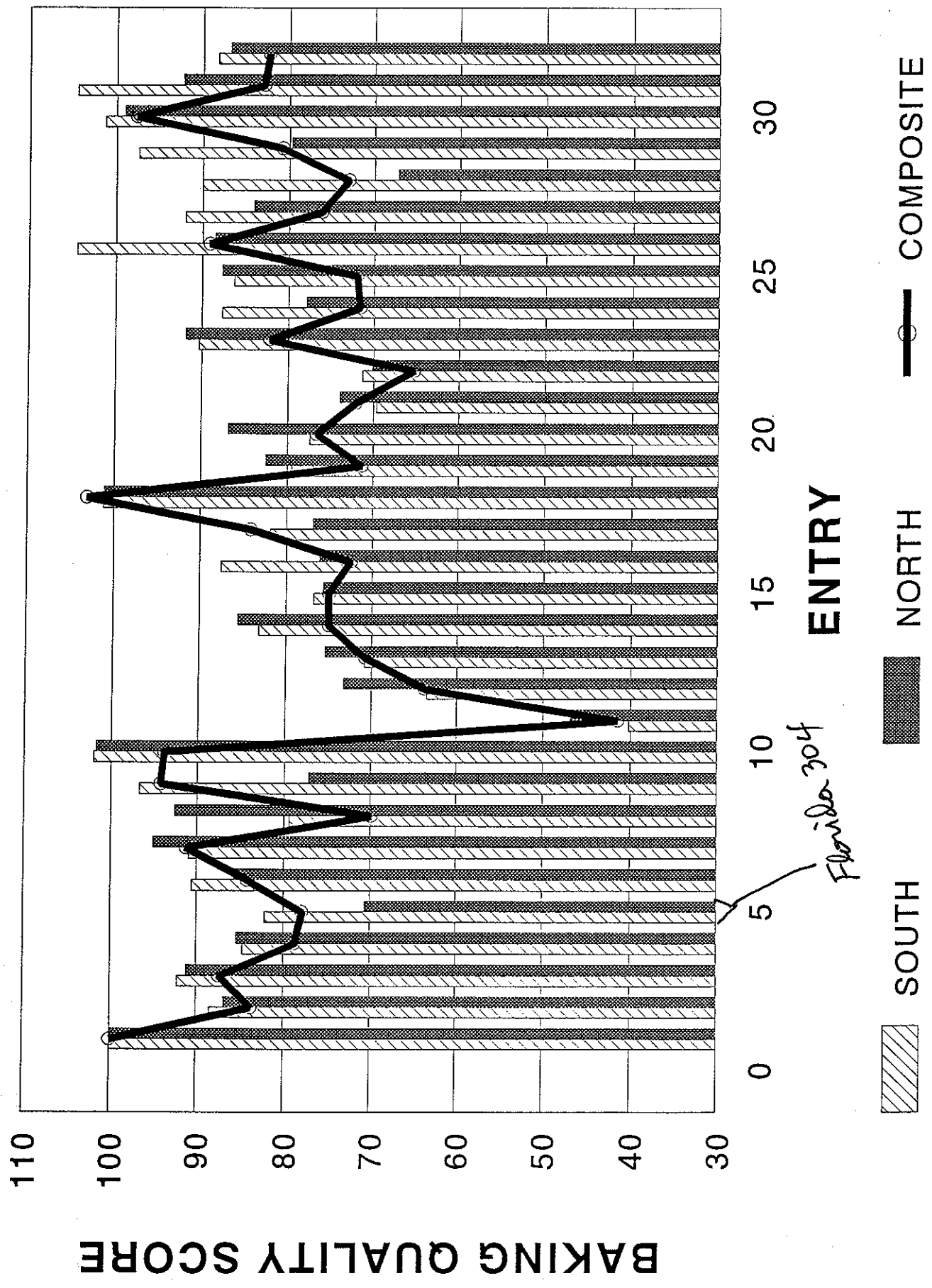


1992 UNIFORM SOUTHERN NURSERY (ADVANCED NURSERY EVALUATION)



9300295

1992 UNIFORM SOUTHERN NURSERY (ADVANCED NURSERY EVALUATION)



UNIFORM SOUTHERN
SOFT RED NURSERY

SAMPLE NO.	ENTRY	MILLING QUALITY		BAKING QUALITY		COMBINED QUALITY		TEST WT. - LB/BU	
		1991	1992	1991	1992	1991	1992	1991	1992
1	FLA 302	99.9	100.0	100.0	100.0	99.9	100.0	58.9	60.0
2	SALUDA	73.7	78.4	81.8	93.8	73.7	78.4	60.4	61.2
3	SC 850559	49.0	52.4	87.7	77.2	49.0	52.4	59.7	60.5
4	FL 8172-G98-L5	53.2	62.6	84.4	83.1	53.2	62.6	59.6	60.2
5	AR 26413A	55.7	68.8	99.7	97.1	55.7	68.8	59.9	60.2
6	AR 26413B	65.0	79.1	96.6	98.6	65.0	79.1	57.6	58.9
7	SC 850236	61.0	72.3	72.1	82.5	61.0	72.3	59.9	60.6
8	AL 870537	68.3	81.0	90.7	92.0	68.3	81.0	59.0	60.5
9	AL 881060	76.8	89.2	98.7	100.6	76.8	89.2	59.8	61.0
10	MD 80004-62	76.0	76.8	46.7	54.2	46.7	54.2	60.3	60.5
	MEAN	67.9	76.1	85.9	87.9	64.9	73.8	59.5	60.4

SAMPLE NO.	ENTRY	BR. FL. YIELD		ST. GR. YIELD		E.S.I.		FRIAB.	
		1991	1992	1991	1992	1991	1992	1991	1992
1	FLA 302	35.06	31.64	78.97	78.07	8.17	8.44	30.47	30.05
2	SALUDA	38.22	34.32	75.88	75.84	10.21	10.21	27.90	27.61
3	SC 850559	36.02	26.21	74.14	74.22	13.68	13.83	25.56	24.86
4	FL 8172-G98-L5	32.34	27.29	74.29	75.01	12.80	12.57	25.86	25.91
5	AR 26413A	35.11	32.88	74.37	74.97	12.39	11.71	26.16	27.10
6	AR 26413B	35.29	32.58	75.21	76.54	11.71	10.91	27.42	27.69
7	SC 850236	34.29	31.97	75.59	75.99	11.78	10.69	25.69	25.91
8	AL 870537	39.78	38.03	75.87	76.72	11.44	9.80	27.39	26.91
9	AL 881060	31.75	30.58	76.37	77.45	10.62	9.96	28.71	28.86
10	MD 80004-62	22.24	20.98	76.92	76.18	10.69	10.69	27.82	27.16
	MEAN	34.01	30.65	75.76	76.10	11.35	10.88	27.30	27.21

SAMPLE NO.	ENTRY	MILLABILITY		FLOUR PROTEIN		FLOUR ASH		A.W.R.C.	
		1991	1992	1991	1992	1991	1992	1991	1992
1	FLA 302	128.40	128.11	9.03	8.72	0.391	0.365	51.2	51.1
2	SALUDA	106.82	108.85	8.76	8.91	0.385	0.369	55.9	54.9
3	SC 850559	81.40	82.23	8.61	9.28	0.411	0.395	53.2	54.5
4	FL 8172-G98-L5	82.60	89.55	9.35	9.21	0.424	0.403	52.0	52.6
5	AR 26413A	88.87	93.66	9.44	9.46	0.400	0.409	52.8	54.4
6	AR 26413B	105.25	107.97	9.24	9.84	0.352	0.379	54.3	53.8
7	SC 850236	98.41	107.29	8.93	8.73	0.372	0.348	55.0	55.3
8	AL 870537	100.75	107.41	8.45	8.45	0.394	0.390	58.2	57.5
9	AL 881060	108.28	115.06	9.00	9.43	0.393	0.387	51.0	51.6
10	MD 80004-62	107.08	105.59	8.88	9.07	0.396	0.380	53.2	53.2
	MEAN	100.79	104.57	8.97	9.11	0.392	0.382	53.7	53.9

SAMPLE NO.	ENTRY	COOKIE DIAMETER	
		1991	1992
1	FLA 302	17.31	17.36
2	SALUDA	17.04	17.34
3	SC 850559	17.08	17.19
4	FL 8172-G98-L5	17.07	17.19
5	AR 26413A	17.42	17.43
6	AR 26413B	17.58	17.45
7	SC 850236	16.86	17.15
8	AL 870537	17.60	17.82
9	AL 881060	17.64	17.66
10	MD 80004-62	16.58	16.74
	MEAN	17.22	17.33

EARLY GENERATION SCREENING EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITIES

1992 CROP

DR. R.D. BARNETT
QUINCY, FLORIDA
VARIETY TRIAL

STANDARD = AVG. OF THREE FLA 302 ENTRIES

SAMPLE NO.	ENTRY	MILLING QUALITY SCORE	BAKING QUALITY SCORE	COMBINED QUALITY SCORE	ADJ. YIELD	PROTEIN %	AWRC %	SOFT-NESS EQUIV.
*	STANDARD	100.0 A	100.0 A	100.0 A	76.05	9.16	54.8	50.30
*	BENCHMARK	93.7 C	109.6 A	93.7 C	74.07 q	8.50	52.0	57.74
2001	1 GA100	94.2 C	92.6 C	92.6 C	74.23 q	8.73	56.5	46.86 *
2002	2 GA-ANDY	92.7 C	97.6 B	92.7 C	73.77 q	10.64 *	57.9 *	52.39
2003	3 GA-GORE	91.4 C	81.7 E	81.7 E	73.34 q	9.74	58.7 *	41.40 q
2004	4 Florida 301	92.8 C	90.6 C	90.6 C	73.78 q	10.10 *	56.0	44.70 q
2005	5 Florida 302	99.8 B	95.4 B	95.4 B	75.98	9.50	55.7	47.99
2006	6 Florida 303	94.4 C	94.7 C	94.4 C	74.29 q	9.40	56.1	47.91
2007	7 Traveler	93.2 C	94.0 C	93.2 C	73.90 q	9.68	56.2	47.53 *
2008	8 ATW 270	97.7 B	100.4 A	97.7 B	75.32	9.13	54.5	50.23
2009	9 Florida 301H	92.2 C	94.0 C	92.2 C	73.61 q	10.30 *	54.9	45.91 *
2010	10 Saluda	93.8 C	90.5 C	90.5 C	74.10 q	9.00	58.9 *	48.26
2011	11 Wakefield	95.3 B	93.2 C	93.2 C	74.57 *	9.39	55.5	46.07 *
2012	12 Madison	100.2 A	97.1 B	97.1 B	76.13	8.26	54.7	48.03
2013	13 Sawyer	98.0 B	95.7 B	95.7 B	75.44	8.04	56.0	48.57
2014	14 Savannah	92.7 C	91.0 C	91.0 C	73.74 q	9.09	56.9	46.14 *
2015	15 Mallard	100.1 A	95.9 B	95.9 B	76.10	9.90	53.7	45.86 *
2016	16 Bayles	90.4 C	96.0 B	90.4 C	73.04 q	10.34 *	55.5	48.18
2017	17 Verne	94.6 C	104.8 A	94.6 C	74.35 q	9.29	54.9	59.95
2018	18 CK 9803	88.7 D	95.8 B	88.7 D	72.50 q	10.64 *	57.2	50.12
2019	19 CK 9877	95.2 B	88.8 D	88.8 D	74.53 *	9.48	55.9	43.24 q
2020	20 CK 9105	96.6 B	100.7 A	96.6 B	74.97 *	9.45	54.4	50.30
2021	21 CK 9227	91.3 C	87.6 D	87.6 D	73.30 q	10.94 *	57.7 *	44.56 q
2022	22 CK 9733	91.6 C	93.3 C	91.6 C	73.40 q	10.68 *	55.2	45.78 *
2023	23 CK 916	92.6 C	85.8 D	85.8 D	73.71 q	8.42	58.7 *	44.51 q
2024	24 CK 9024	96.3 B	106.5 A	96.3 B	74.90 *	8.67	53.9	54.58
2025	25 CK 9907	97.2 B	90.6 C	90.6 C	75.17 *	8.98	56.1	44.87 q

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EARLY GENERATION SCREENING EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITIES

1992 CROP

DR. R.D. BARNETT
QUINCY, FLORIDA
VARIETY TRIAL

STANDARD = AVG. OF THREE FLA 302 ENTRIES

SAMPLE NO.	ENTRY	MILLING QUALITY SCORE	BAKING QUALITY SCORE	COMBINED QUALITY SCORE	ADJ. YIELD	PROTEIN %	AWRC %	SOFT-NESS EQUIV.
2026	26 CK 9766	86.1 D	94.9 C	86.1 D	71.68 Q	10.58 *	56.5	48.56
2027	27 CK 9543	92.5 C	92.4 C	92.4 C	73.68 Q	9.76	54.8	44.59 Q
2028	28 CK 9134	93.8 C	99.4 B	93.8 C	74.11 Q	9.47	55.8	51.09
2029	29 CK 9904	93.0 C	108.0 A	93.0 C	73.85 Q	9.62	53.0	56.90
2030	30 Caldwell	97.3 B	105.0 A	97.3 B	75.21 *	8.92	54.8	57.71
2031	31 Clark	84.9 D	98.8 B	84.9 D	71.31 Q	9.94	55.8	50.63
2032	32 Pioneer 2548	86.2 D	80.7 E	80.7 E	71.70 Q	9.28	60.8 Q	43.26 Q
2033	33 Pioneer 2555	96.6 B	103.2 A	96.6 B	74.98 *	9.21	54.8	52.71
2034	34 Florida 302	101.0 A	97.4 B	97.4 B	76.35	8.50	55.5	49.25
2035	35 Saluda	93.3 C	94.0 C	93.3 C	73.93 Q	8.76	58.0 *	49.82
2036	36 CK 9835	94.2 C	103.7 A	94.2 C	74.22 Q	8.12	55.6	57.14
2037	37 Sc 850559	89.5 D	102.1 A	89.5 D	72.73 Q	9.01	55.7	52.99
2038	38 Florida 304	87.3 D	86.1 D	86.1 D	72.04 Q	9.37	57.7 *	43.49 Q
2039	39 AR 26413B	93.2 C	94.7 C	93.2 C	73.92 Q	9.41	56.6	48.55
2040	40 AL 870537	95.8 B	102.3 A	95.8 B	74.74 *	8.80	55.9	53.42
2041	41 AL 881060	98.5 B	97.5 B	97.5 B	75.57	8.73	54.4	47.92
2042	42 GA 85238-C5-AB5-4	87.5 D	88.8 D	87.5 D	72.12 Q	9.65	56.0	43.36 Q
2043	43 GA 85238-C5-AB3-3	91.0 C	91.8 C	91.0 C	73.22 Q	9.25	57.2	47.13 *
2044	44 GA 83228-1	92.4 C	90.4 C	90.4 C	73.67 Q	9.73	58.2 *	47.34 *
2045	45 GA 801226-12	88.7 D	89.1 D	88.7 D	72.49 Q	8.69	57.1	44.95 *
2046	46 Pioneer WW504	89.6 D	81.8 E	81.8 E	72.79 Q	8.04	60.0 Q	43.13 Q
2047	47 ABI88D-1903	94.9 B	100.4 A	94.9 B	74.45 *	8.36	55.5	51.48
2048	48 Cardinal	92.6 C	97.6 B	92.6 C	73.73 Q	10.28 *	55.3	49.14
2049	49 Caldwell	95.5 B	107.0 A	95.5 B	74.62 *	8.45	53.6	62.11
2050	50 AL 870365	88.2 D	98.2 B	88.2 D	72.33 Q	10.02	56.1	50.54
2051	51 MD 80071-56	84.6 E	98.5 B	84.6 E	71.21 Q	9.68	56.1	50.76
2052	52 Pioneer XW504	87.6 D	93.7 C	87.6 D	72.14 Q	8.95	57.2	48.55
2053	53 Florida 302	98.7 B	107.1 A	98.7 B	75.63	9.45	53.3	53.80

Exhibit E

Statement of the Basis of Applicants' Ownership

Florida 304 was bred and developed by Dr. R.D. Barnett, University of Florida, Institute of Food and Agricultural Sciences, Florida Agricultural Experiment Station. The owner of the variety is the Florida Agricultural Experiment Station, University of Florida, IFAS. The address for correspondence with the owner is as follows:

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University of Florida-IFAS
P.O. Box 110200
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Gainesville, FL 32611-0200